

Manitoba: Weeds to Watch For

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HR – herbicide resistant

*NWA – The Noxious Weeds Act of Manitoba

Tier 1 – all plant parts must be destroyed

Tier 2 – destroy or control based on size of infestation

Tier 3 – control required for infestations causing harm



Confirmed Multiple HR in MB

Wild oat

Alias: *Avena fatua*

Features: annual, no auricle, hairs on leaf margin, up to 4 ft tall, panicle with up to 250 awned seeds, seeds can remain dormant in soil up to 8 years

Caution: #4 on 2016 MB Weed Survey, prefers cool weather and moist soil, HR to Groups 1,2,8,14,15, 25; 10 plants/m² can reduce wheat, barley and canola yields by 10% and flax yields by 20%.



Confirmed HR in North Dakota

Tall waterhemp (Tier 1 NWA*)

Alias: *Amaranthus tuberculatus*

Features: annual, C4, dioecious (genetically diverse), produces up to 500,000 seeds/plant, germinates throughout the summer especially in reduced-tillage systems leaving seeds at soil surface, smooth stem, up to 8 ft. tall, elongated glossy leaves,

Caution: studies show the growth rate is 50-70% greater than many other annual weeds, multiple HR biotypes involving Groups 2,4,5,9,14&27



Widespread Grp 9 HR in MB.

Kochia (Tier 3 NWA*)

Aliases: *Kochia scoparia*

(summer cypress, burning bush, tumbleweed)

Features: annual, 6 in. to 6 ft tall, hairy alternate leaves, inconspicuous flowers, 15-30,000 seeds/plant, outcrosses or self-pollinates, roots can penetrate up to 10 ft, can germinate throughout the summer, drought and salinity tolerant

Caution: 21 plants/m² can reduce wheat yield by 33%, commonly HR to Group 2s, known Group 4 HR biotypes



Group 2 HR biotypes in MB

Redroot pigweed

Alias: *Amaranthus retroflexus*

Features: annual, C4, prolific, seed viable for 5 years, taproot, rough stem, 1-3 ft. tall, dull green alternate leaves, germinates at high temps (20-30°C), will germinate late in summer with adequate soil moisture

Caution: alternate host for many crop insect pests, under hot conditions can quickly advance beyond recommended stages for herbicide application, indicator of high nitrogen soils



#20 on 2016 MB Weed Survey

Biennial wormwood

Alias: *Artemisia biennis*

Features: annual or biennial, up to 6 ft tall, highly competitive, prolific - up to 1 million seeds/plant, germinates spring, summer or fall, stem is smooth/hairless, sage-carrot odor, leaves pinnately divided and redivided

Caution: Invades pastures, ditches, and crop land, tolerant to most PPI and PRE herbicides



#14 on 2016 MB Weed Survey

Lamb's quarters (Tier 3 NWA*)

Alias: *Chenopodium album*

Features: Annual, height 2-3 ft., C4, alternate leaves with white mealy particles (wax), germinates at low temps, averages 72,000 seeds/plant, seed can survive 30-40 years

Caution: Triazine-R common in ON, 200 plants/m² can reduce barley yield by 20-25%, produces oxalic acid that is poisonous to sheep and swine in large amounts



Easily selected for Group 9 HR

Giant ragweed (Tier 3 NWA*)

Aliases: *Ambrosia trifida* (horseweed)

Features: Annual, 16 in.-13 ft tall, stems somewhat hairy; leaves opposite except at ends of branches, leaves large, mainly 3- or can be 5-lobed, small upper leaves not lobed; leaf surface rough (like sandpaper), native to North America

Caution: single plant produces up to one billion pollen grains. 1 plant/m² can reduce crop yields by 45 to 77%



Confirmed HR in North Dakota

Palmer amaranth (Tier 1 NWA*)

Alias: *Amaranthus palmeri*

Features: dioecious, C4, high genetic diversity, hairless stem, aggressive growth, up to 7 ft tall, germinates late winter until fall, alternate ovate leaves, petioles longer than leaf, produces up to 600,000 seeds/female plant, most seeds degrade after 3 years

Caution: very competitive, R to multiple herbicide groups including 2,3,5,9&14



Easily selected for Group 9 HR

Common ragweed (Tier 3 NWA*)

Alias: *Ambrosia artemisiifolia*

Features: annual, 6 in – 5 ft tall, compound finely divided leaves, long taproot, distinctive inflorescence - seed at base of long clusters of male flowers, produce 3-60,000 seeds which can persist for 80 years, seed survives digestion (contaminates manure)

Caution: important cause of hay fever, produce huge amount of very light pollen that can move more than 125 miles, strong accumulator of N, P, K and many micronutrients



#6 on 2016 MB Weed Survey

Yellow foxtail

Aliases: *Setaria pumila*, *S. glauca*

Features: annual, C4 plant, grows up to 3 ft tall, may be highly branched (many tillers), leaf has long hairs at the base and margin surface, flowers are dense spike-like panicles with yellow bristles

Caution: prefers warmer regions, causes yield reductions in wheat 16%, oats 11%, soybeans 15%, biotypes with Group 1&2 or Group 5 herbicide resistance